CropPest Ontario

Agriculture Development Branch
Editor—Albert Tenuta– Field Crop Pathologist
www.omafra.gov.on.ca/croppest

ISSN 1203-2204 VOLUME NO. 17 ISSUE NO. 11 October 26 2012

"IN THIS ISSUE"

- Can Fall Tillage Leave over 30% Residue Cover?
- Grain Gadgets and Ideas
- 2,4-D Ester Now Registered for Use Pre-Plant in Soybean to Control Glyphosate Resistant Giant Ragweed

Comments, suggestions or articles are welcome. To be added to the distribution list please contact:

Albert Tenuta or Mirjam Hall
Phone 519-674-1690
Fax 519-674-1564
albert.tenuta@ontario.ca
or
mirjam.hall@ontario.ca

Can Fall Tillage Leave over 30% Residue Cover?

Christine Brown, Nutrient Management Field Crops Program Lead, Woodstock, OMAFRA

Leaving 30% crop residue has been proven to minimize top soil losses from wind and water erosion. But what does 30% soil cover look like? Do certain tillage implements leave less than 30% crop residue? Crop residue in the form of corn stalks, soybean stubble, cereal straw, or green cover (growing crops or cover crops) are all effective ways to achieve 30% cover. In a demonstration at the Outdoor Farm Show in 2012 we learned that if we remove straw from a cereal crop and follow with any type of tillage we retain less than 30% residue. However, the tillage action stimulated a more uniform germination of volunteer cereals which increased total soil cover to well over 30%. The following photographs illustrate crop residue cover after tillage action on two differently managed field scenarios.

Key Learnings from Demonstration:

- If the straw is removed and followed with any type of tillage, it is difficult to achieve 30% residue cover. Allowing volunteer cereals to grow or seeding a cover crop will get you over 30% cover.
- 30% soil cover after harvest does not mean 30% will be remaining in the spring. Residue management ranging from type of residue, form of tillage, modifications or adjustments to tillage equipment and combinations using cover crops will all impact the amount of soil cover.

PIONEER. A DuPont Company
Hyland Seeds BUILDING
NK syngenta
BAYER Bayer CropScience
FS
MONSANTO imagine
BASF The Chemical Company

Ministry of Agriculture, Food and Rural Affairs
Ontario

Grain Gadgets and Ideas

Helmut Spieser, Engineer, OMAFRA Ridgetown

Harvest is again under way and corn will be heading to the dryer or directly into storage bins. As you travel and visit other farmers' grain handling and storage systems you see things that are simple but make life a little less stressful. I will outline a number of items that I have seen on various farms. These items are in no particular order but you should find them interesting

Bypass / Fill Diverter

How many times have you accidentally put corn on top of soybeans? With this bypass / fill diverter this should not happen. The diverter is connected to the end of the down spout at the top of the bin and directs grain flow either into the bin or to a bypass pipe. The bypass pipe is fastened along the outside the roof and the bin wall and terminates six feet off the ground. When a bin has been filled, the diverter is moved to the bypass position and locked with a padlock from the ground. If grain is sent down to this bin, it will be diverted to the bypass pipe and lands on the ground. The farmer who has this system has paved the space between all the bins with concrete. Yes, there will be some cleanup required but the bin is not contaminated.

Hopper Wagon Dump Assistant

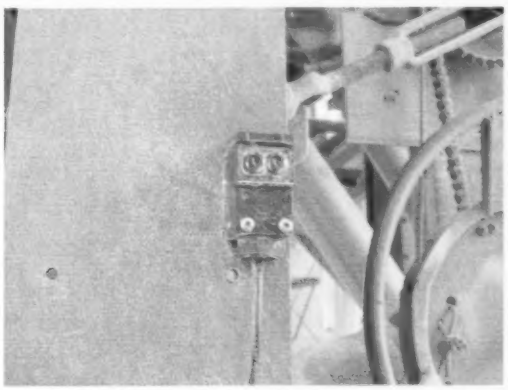
Wet corn tends to stick in hopper wagons preventing thorough cleanout. Some farmers have tried using graphite paint on the wagon floor to aid in cleanout. If corn still sticks, here's a dump assistant. This home-built platform uses hydraulic cylinders to lower the platform from its vertical storage position. Hydraulics are then used to increase the platform height raising one side of the wagon almost a foot. Corn has no way of staying in the box and no banging is required.

OMAFRA Field Crop Staff Working for You!

Dawn Pate	Manager–Field Crops	519-826-3257
Joel Bagg	Forage Specialist	705-324-5856
Scott Banks	Emerging Crops Specialist	613-258-8359
Tracey Baute	Entomology, Field Crops Program Lead	519-674-1696
Horst Bohner	Soybean Specialist	519-271-5858
Christine Brown	Nutrient Management Field Crop Program Lead	519-537-8305
Mike Cowbrough	Weed Management Field Crops Program Lead	519-824-4120 ext.52580
Brian Hall	Edible Beans & Canola Specialist	519-271-0083
Peter Johnson	Cereals Specialist	519-271-8180
Adam Hayes	Soil Management Specialist–Field Crops	519-674-1621
Ian McDonald	Applied Research Coordinator-Field Crops	519-824-4120 ext 56707
Gilles Quesnel	IPM Program Lead-Field Crops (Bilingual)	613-258-8250
Greg Stewart	Corn Industry Program Lead	519-824-4120 ext 54865
Albert Tenuta	Pathologist – Field Crops Program Lead	519-674-1617

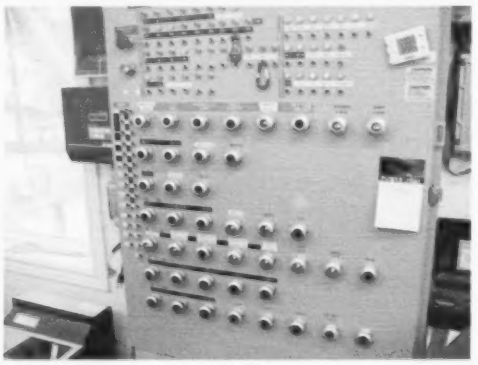
Dump Aligner

When you are pulling in a train of wagons, it is sometimes difficult to hit the dump pit exactly. Here is a low cost system that works. It uses a garage door safety sensor and some reflective tape. The safety sensor is mounted to a structural steel member beside the unloading grate and aimed at the side of the wagon. When the wagon chute is lined up with the unloading grate, a strip of reflective tape is fastened on the side of the wagon, directly in front of the safety sensor. When the sensor signal bounces back from the reflective tape, it activates a red light which is visible to the tractor driver, indicating that the wagon chute is perfectly aligned with the unloadable grate. Every wagon gets its own strip of reflective tape. Neighbours who bring in grain could also add reflective tape to their own wagons.



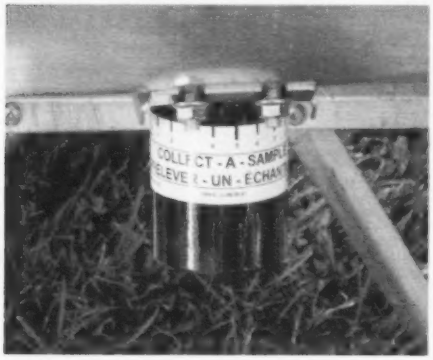
Shaft Speed Sensors

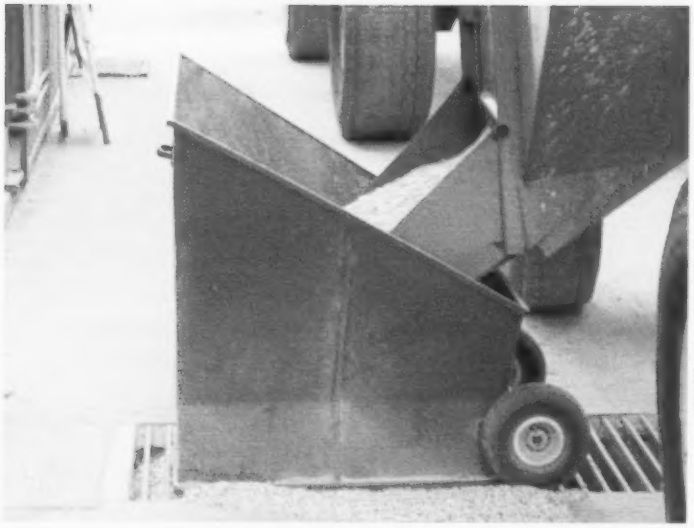
If your system has a leg elevator, a dryer and conveyors you may be a candidate for shaft speed sensors. Shaft speed sensors are used to measure speeds of critical shafts in your system. The control system monitors shaft speeds and will provide operator notification when speeds fall outside critical ranges. More sophisticated systems can shut down equipment before damage occurs. In this way things like plugged legs would be a thing of the past. This system would also let you know a belt is broken before down spouts are plugged.



Grain Auger Sampling

Knowing the moisture content of grain moving through your system allows you to make appropriate management decisions. Augers can inflict serious damage to life and limb so you don't want to try to sneak out a sample. Grain samplers are mounted on the auger tube allowing you to take samples without putting yourself at risk. Samplers are installed 45° from the bottom of the auger tube. A small opening in the auger tube allows corn to trickle out when the sampler is open. In this way they allow for a more representative sample of grain to be taken. These samplers are available from your local bin supplier or they can be home-built.



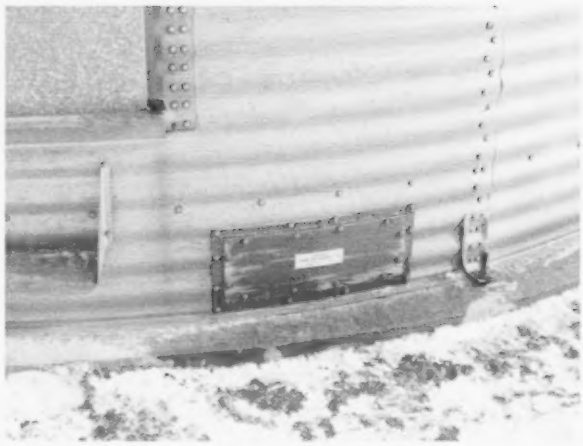


Unloading Hopper

Wagon chutes always seem to be wider than dump pit grates. As a result, grain spills onto the surrounding concrete and cleanup is needed every time a wagon or truck leaves. This portable welded steel hopper is rolled into place before the wagon unloads. This hopper minimizes the amount of grain that spills onto the concrete and results in a lot less sweeping.

Blow Out Doors

Perforated bin floors allow fine material to fall down into the space below. The bin use and type of perforated flooring will affect the amount of material that accumulates. Over the years, fine crop material can reach a depth that can hinder airflow under the aeration floor. Cleaning out under the perforated floor is never an easy job. Blow out doors are now available to get this material out of the bin. A number of these doors are installed around the skirt of the bin. When the bin is full and the material under the floor is dry, the doors are removed one at a time and then the fan is turned on. After the fan is turned off the door is reinstalled and the next one removed. Let your aeration fan do your under floor cleaning.



2,4-D Ester now registered for use pre-plant in soybean to control glyphosate resistant giant ragweed

Mike Cowbrough, Weed Management Field Crops, Guelph, OMAFRA

Soybean growers in Ontario now have an approved option for controlling glyphosate resistant giant ragweed (Ambrosia trifida), a species that can reduce yields by over 50%. The pre-plant application of 2,4-D Ester 700 (pcp #27820, NuFarm) was recently granted a user requested minor use label expansion. In research trials conducted by Joe Vink and Dr. Peter Sikkema (University of Guelph, Ridgetown Campus), glyphosate resistant giant ragweed was best controlled with a pre-plant application of glyphosate + 2,4-D Ester 700 (at a rate of 0.32 L/ac).

Figure 1. A pre-plant application of glyphosate + 2,4-D Ester 700 (left) is adequately controlling giant ragweed in soybean compared to giant ragweed that is resistant to glyphosate (right)

2,4-D Ester now registered for use pre-plant in soybean to control glyphosate resistant giant ragweed

....continued

Table 1. Percent visual control of giant ragweed at 4 weeks after application with three pre-plant herbicide treatments and corresponding soybean yield (bu/ac).

Pre-Plant Treatment*	Rate	Weed Control (%)	Yield (bu/ ac)
unsprayed		0	21
glyphosate (540 g/L)	0.67 L/ac	44	28
glyphosate (540 g/L) + 2,4-D Ester 700	0.67 + 0.32 L/ ac	98	42
glyphosate (540 g/L) + Eragon + Merge	0.67 L/ac + 14.4 g/ac + 0.5% v/v	87	39

Source: Adapted from Vink et al., 2012. Can J. Plant Sci. 92:913-922
*A water volume of 200 L/ha (20 U.S. gal/ac) was used.

DIRECTIONS FOR 2,4-D ESTER 700 USE IN SOYBEAN

Application Timing
Pre-emergent to soybean (applied a minimum of 7 days before planting) and post-emergent to giant ragweed. The rate of 2,4-D Ester 700 used in this application timing will not provide residual control of giant ragweed.

Recommended Rate: 0.32 L/ac (0.8 L/ha)

USE PRECAUTIONS:

- Do not use in sandy soils with less than 1% organic matter. Plant soybean seeds as deep as possible, but not less than 2.5 cm (1"). Adjust planter to ensure adequate coverage of planted seed.
- Do not graze or cut treated crops for forage or hay until 67 days after application.
- Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

Spray Volume: 50 – 200 L/ha (5 – 20 U.S. gal/ac). Efficacy results in table 1 were based on a spray volume of 200 L/ha (20 U.S. gal/ac).

Number of Applications: One per season

Pre-harvest Interval (PHI): 90 days

2,4-D Ester now registered for use pre-plant in soybean to control glyphosate resistant giant ragweed

....continued

Figure 2. Typical leaf distortion as the result of 2,4-D applied prior to soybean emergence but ignoring the pre-plant interval specified.

I thought 2,4-D applied pre-plant could injure soybeans?

Under the right circumstances all herbicides can cause crop injury. There have been two studies conducted in Ontario over the past 20 years that have looked at soybean tolerance to pre-plant applications of 2,4-D (Tables 2 and 3). In general if the guidelines presented on the label are followed the risk of crop injury is small. The potential for soybean injury increases when:

- Amine formulations are used. The amine formulation of 2,4-D is highly water soluble and increases the chance of root uptake, crop injury and yield reductions (Table 3). 2,4-D Ester 700 should always be used.
- The pre-plant interval of 7 days or more is not followed and applications are made at or shortly after planting.

Table 2. Yield (bu/ac) and visual injury (%) of soybean treated with 2,4-D ester 700 at 0.5 L/ac applied at 14, 7 and 1 day before planting and at 7 days after planting.

Treatment	Crop Injury (%)	Yield (bu/ac)
weed-free control	0	47
Applied 14 days before planting	1	48
Applied 7 days before planting	1	49
Applied 1 day before planting	4	47
Applied 7 days after planting	6	47

Source: Soltani et al., 2008. Effect of amitrole and 2,4-D applied preplant and pre-emergence in soybean. Weed Biology and Management. 8, 39-144.

Table 3. Soybean yield (bu/ac) averaged over 2 seasons (1989 and 1990) as affected by 2,4-D Amine and Ester applied at 14 and 7 days prior to planting .

Application Timing	Formulation	Yield (bu/ ac)
Control	N.A.	29
14 days before planting	AMINE	33
	ESTER	35
7 days before planting	AMINE	32
	ESTER	38

Source: Jim Shaw and Clarence Swanton. 1991. Residual effect of 2,4-D on the soybeans. Soil and Water Environmental Enhancement Program (SWEEP). Report 32. pp 127-128.

Important wording on the label:

"The **DIRECTIONS FOR USE** for this product for the use(s) described above were developed by persons other than Nufarm Agriculture Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion Program. Nufarm Agriculture Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed below. Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Nufarm Agriculture Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the use described below."

Acknowledgements:

- Peter Sikkema (University of Guelph) for spearheading the most recent research to support this minor use initiative.
- Todd Cowan (University of Guelph) for preparing the data summary to support this minor use initiative.
- Jim Chaput (OMAFRA) for coordinating the minor use submission

SOUTHWEST AGRICULTURAL CONFERENCE

Mark your Calendars for the 20th Southwest Agricultural Conference—2013!
Thursday, January 3 and Friday, January 4, 2013
www.southwestagconference.ca